

Claims

1. A DNA sequence encoding a protein of the TGF- β family selected from the following group:

(a) a DNA sequence comprising the nucleotides

ATGAACTCCATGGACCCCGAGTCCACA

with the reading frame for the protein starting at the first nucleotide

(b) a DNA sequence comprising the nucleotides

CTTCTCAAGGCGAACACACAGCTGCAGGCACC

with the reading frame for the protein starting at the first nucleotide

(c) DNA sequences which are degenerate as a result of the genetic code to the DNA sequences of (a) and (b)

(d) allelic derivatives of the DNA sequences of (a) and (b)

(e) DNA sequences hybridizing to the DNA sequences in (a), (b), (c) or (d) and encoding a protein containing the aminoacid sequence

Met-Asn-Ser-Met-Asp-Pro-Glu-Ser-Thr

or

Leu-Leu-Lys-Ala-Asn-Thr-Ala-Ala-Gly-Thr

(f) DNA sequences hybridizing to the DNA sequences in (a), (b), (c) and (d) and encoding a protein having essentially the same biological properties.

2. The DNA sequence according to claim 1 which is a vertebrate DNA sequence, a mammalian DNA sequence, preferably a primate, human, porcine, bovine, or rodent DNA sequence, and preferably including a rat and a mouse DNA sequence.

3. The DNA sequence according to claim 1 or 2 which is a DNA sequence comprising the nucleotides as shown in SEQ ID NO. 1.

4. The DNA sequence according to claim 1 or 2 which is a DNA sequence comprising the nucleotides as shown in SEQ ID NO. 2.

5. The DNA sequence according to claim 1 or 2 which is a DNA sequence comprising the nucleotides as shown in SEQ ID NO. 5.

6. The DNA sequence according to claim 1 or 2 which is a DNA sequence comprising the nucleotides as shown in SEQ ID NO. 6.

7. A recombinant DNA molecule comprising a DNA sequence according to any one of claims 1 to 6.

8. The recombinant DNA molecule according to claim 7 in which said DNA sequence is functionally linked to an expression-control sequence.

9. A host containing a recombinant DNA molecule according to claim 7 or 8.

10. The host according to claim 9 which is a bacterium, a fungus, a plant cell or an animal cell.

11. A process for the production of a protein of the TGF- β family comprising cultivating a host according to claim 9 or 10 and recovering said TGF- β protein from the culture.

12. A protein of the TGF- β family encoded by a DNA sequence according to any one of claims 1 to 4 or a fragment thereof encoded by a DNA-sequence according to claim 5 or 6.

13. A protein according to claim 12 comprising the amino acid sequence of SEQ ID NO: 3.

14. A protein according to claim 12 comprising the amino acid sequence of SEQ ID NO. 4.

15. A pharmaceutical composition containing a protein of the TGF- β family according to any one of claims 12 to 14, optionally in combination with a pharmaceutically acceptable carrier.

16. The pharmaceutical composition according to claim 15 for the treatment or prevention of bone, cartilage, connective tissue, skin, mucous membrane, endothelial, epithelial, neuronal, renal or tooth defects, for use in the case of dental implants, for use in wound healing or tissue repair processes, as a morphogenic factor used for inducing liver tissue growth, induction of the proliferation of precursor cells or bone marrow cells, for maintaining a differentiated state and for the treatment of impaired fertility or for contraception.

17. An antibody or antibody fragment which is capable of specifically binding to a protein of claims 12, 13 or 14.

18. Antibody or antibody fragment according to claim 17 which is a monoclonal antibody.

19. Use of an antibody or antibody fragment according to claims 17 or 18 for diagnostic methods.

6512260-20070600